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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/466,961	12/20/1999	YOUN GYOUNG CHANG	8733.20050	1786

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EXAMINER

BROCK II, PAUL E

ART UNIT	PAPER NUMBER
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2815

DATE MAILED: 04/01/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/466,961	CHANG ET AL.
	Examiner Paul E Brock II	Art Unit 2815

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 25 February 2002.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1,3,4,9,10 and 15-18 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1,3,4,9,10 and 15-18 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on 31 August 2001 is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All. b) Some * c) None of:

1. Certified copies of the priority documents have been received.

2. Certified copies of the priority documents have been received in Application No. _____.

3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____

4) Interview Summary (PTO-413) Paper No(s) _____

5) Notice of Informal Patent Application (PTO-152)

6) Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 15 – 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

There is no antecedent basis for “said ohmic contact layer” in claim 15 or “the ohmic contact layer” in claim 16. For purposes of this office action “said” or “the ohmic contact layer” will be considered “said contact layer.”

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 4, 9 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawai et al. (USPAT 581133, Kawai) in view of the applicant’s admitted prior art.

With regard to claim 1, Kawai discloses in figure 2 a switching TFT (A) controlling a release of stored charges of a storage capacitor to an external circuit for display of an image of an

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object, the switching TFT having a gate electrode (26), an insulating layer (31) on the gate electrode, an active layer (33) on the insulating layer, an ohmic contact layer on the active layer, and dual layered source and drain electrodes that are comprised of first source and drain electrodes made from a transparent conductive material (24) that is in contact with the ohmic contact, and from second source and drain electrodes comprised of a metal material (28 and 27) on the first source and drain electrodes. Kawai is silent to a sensor TFT and a storage capacitor. The applicant's admitted prior art discloses in figure 1 a sensor thin film transistor (TFT) (C) generating optical current by incident light reflected from an object. The applicant's admitted prior art further discloses in figure 1 a storage capacitor storing charges of the optical current generated in the sensor thin film transistor. It would have been obvious to one of ordinary skill in the art at the time of the present invention to use the sensor tft and the storage capacitor of the applicant's admitted prior art in the method of Kawai in order to create a conventional optical detecting sensor.

With regard to claim 4, Kawai discloses in column 8, lines 31 – 33 that the transparent conducting material is indium tin oxide.

With regard to claim 9, Kawai teaches in column 8, lines 38 – 41 wherein the metal material is a substantially non-transparent metal material.

Claim 15 is rejected similar to claim 1.

5. Claims 3, 10, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawai and the applicant's admitted prior art as applied to claims 1 and 15 above, and further in view of den Boer et al. (USPAT 5656824, den Boer).

With regard to claim 3, Kawai and the applicant's admitted prior art do not teach the metal for the dual layered source and drain regions comprises chrome. den Boer teaches column 5, line 50 a metal layer of chrome for a dual layer source electrode. It would have been obvious to one of ordinary skill in the art at the time of the present invention to use chrome as the metal material in the dual layered electrodes of the applicant's admitted prior art and Kawai in order to have a known material that is sufficiently not transparent.

With regard to claim 10, Kawai teaches the transparent conducting material contacts the ohmic contact layer. Kawai and the applicant's admitted prior art do not teach that the transparent conducting material layer and the metal material layer each contact the contact layer. den Boer teaches in figure 2 a source electrode wherein a transparent conducting material (42) and the metal material (40) each contact a contact layer (34). It would have been obvious to one of ordinary skill in the art at the time of the present invention to use the contacting of both the transparent conducting material and the metal material to the contact of den Boer in the device of Kawai and the applicant's admitted prior art in order to permit the TFT to selectively energize a corresponding pixel in the LCD as stated by den Boer in column 5, lines 29 – 35. The applicant's admitted prior art discloses in figure 1 that a source and drain electrode can be the same. It would have been obvious to one of ordinary skill in the art at the time of the present invention to use a drain electrode that is exactly the same as the dual layered source electrode of den Boer in the switching TFT of the applicant's admitted prior art, Kawai and den Boer in order to simplify processing steps as is well known in the art.

With regard to claim 16, Kawai and the applicant's admitted prior art do not teach that the non-transparent metal layer contacts the contact layer. den Boer teaches in figure 2 a source

electrode wherein a non-transparent metal layer (40) contacts a contact layer (34). It would have been obvious to one of ordinary skill in the art at the time of the present invention to use the contacting of the non-transparent metal layer to the contact layer of den Boer in the device of Kawai and the applicant's admitted prior art in order to permit the TFT to selectively energize a corresponding pixel in the LCD as stated by den Boer in column 5, lines 29 – 35. The applicant's admitted prior art discloses in figure 1 that a source and drain electrode can be the same. It would have been obvious to one of ordinary skill in the art at the time of the present invention to use a drain electrode that is exactly the same as the dual layered source electrode of den Boer in the switching TFT of the applicant's admitted prior art, Kawai and den Boer in order to simplify processing steps as is well known in the art.

Claim 17 is rejected similar to claim 10, above.

6. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawai in view of den Boer.

Kawai discloses in figure 10 a gate electrode on a substrate (21). Kawai discloses in figure 2 an insulating layer (31) over the gate electrode. Kawai discloses in figure 10 a semiconductor layer on the insulating layer and adjacent the gate electrode, wherein the semiconductor layer includes an active layer (33) and a contact layer (34). Kawai discloses in figure 10 spaced apart first and second electrodes that electrically contact the contact layer so as to define a channel region. Kawai discloses in figure 10 wherein the second electrode of the TFT is a dual layer structure comprised of a transparent conducting layer (35) that electrically contacts the contact layer and a non-transparent metal layer (27) that is disposed over the

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transparent conducting layer. Kawai does not teach that the non-transparent metal layer extends over an end of the transparent conducting layer to electrically contact the contact layer. den Boer teaches in figure 2 a second electrode wherein an upper conducting layer extends over an end of a lower conducting layer to electrically contact a contact layer. It would have been obvious to one of ordinary skill in the art at the time of the present invention to have the upper conducting layer extending over an end of a lower conducting layer to electrically contact a contact layer as in den Boer in the device of Kawai in order to permit the TFT to selectively energize a corresponding pixel in the LCD as stated by den Boer in column 5, lines 29 – 35.

Response to Arguments

7. Applicant's arguments with respect to claims 1, 3, 4, 9, 10 and 15 – 18 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul E Brock II whose telephone number is (703)308-6236. The examiner can normally be reached on 8:30 AM-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee can be reached on (703)308-1690. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-7722 for regular communications and (703)308-7722 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

Paul E Brock II
March 22, 2002


Jerome Jackson, Jr.
Primary Examiner